WHAT IS CLAIMED IS:

1. A semiconductor device, comprising:

a semiconductor substrate; and

an indium doped dielectric layer located over the semiconductor substrate.

2. The semiconductor device as recited in Claim 1 wherein the indium doped dielectric layer is an interlevel dielectric layer.

3. The semiconductor device as recited in Claim 1 wherein the indium doped dielectric layer is an indium doped silicon dioxide layer.

4. The semiconductor device as recited in Claim 1 wherein the indium doped dielectric layer has a thickness ranging from about 400 nm to about 1200 nm.

5. The semiconductor device as recited in Claim 1 wherein the indium doped dielectric layer has an indium concentration ranging from about 1 mole weight percent to about 15 mole weight percent.

6. The semiconductor device as recited in Claim 1 further including an active region, wherein the indium doped dielectric layer is located over the active region.

7. The semiconductor device as recited in Claim 6 wherein the active region is a channel region of a metal oxide semiconductor device.

8. The semiconductor device as recited in Claim 6 wherein the active region is an active region of an optoelectronic device.

9. A method of manufacturing an semiconductor device, comprising:

creating a semiconductor substrate; and

forming an indium doped dielectric layer over the semiconductor substrate.

10. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped interlevel dielectric layer.

11. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped silicon dioxide layer.

12. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer to a thickness ranging from about 400 nm to about 1200 nm.

13. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer having an indium concentration ranging from about 1 mole weight percent to about 15 mole weight percent.

14. The method as recited in Claim 13 further including forming an active region over the semiconductor substrate, and wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer over the active region.

15. The method as recited in Claim 14 wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer using a manufacturing process selected from the group consisting of a physical vapor deposition process or a chemical vapor deposition process.

16. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer using a physical vapor deposition process employing a target that comprises silicon dioxide and indium.

17. The method as recited in Claim 9 wherein forming an indium doped dielectric layer includes forming an indium doped dielectric layer using a pressure ranging from about 4 mTorr to about 8 mTorr, using a radio frequency (RF) power ranging from about 50 watts to about 550 watts and using a gas flow rate ranging from about 10 ccm to about 35 ccm.

18. An integrated device, comprising:

a first semiconductor device, including;

a semiconductor substrate; and

an indium doped dielectric layer located over the semiconductor substrate; and

a second semiconductor device located adjacent the first semiconductor device and over the semiconductor substrate.

19. The integrated device as recited in Claim 18, wherein the first or second semiconductor device is a microelectronic device selected from the group consisting of:

a complementary metal oxide semiconductor (CMOS) device;

a bipolar device; and

a bipolar complementary metal oxide semiconductor (BiCMOS) device.

20. The integrated device as recited in Claim 18, wherein the first or second semiconductor device is an optoelectronic device selected from the group consisting of:

a modulator;

a laser; and

a photodetector.